

REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested.

Claims 1-52 are pending in this application. Claims 4, 6-12, 18-21, 28-32, 34, 35, 37, 39, 41, 42, 44 and 46 have been withdrawn from consideration. Claims 1-3, 5, 22-27, 33, 38, 40, 45 and 47-52 stand rejected. Claims 1-3, 13, 15, 21-23, 27, 33, 36, 38, 40, 43 and 45 are amended herein. No new matter has been added.

The Applicants respectfully submit that the present (i.e., dated May 9, 2008) Office Action has been improperly made FINAL.

MPEP section 706.06 indicates that "... second or any subsequent actions on the merits shall be final except where the Examiner introduces a new ground of rejection that is neither necessitated by applicant's amendments of the claims, nor based on information submitted in an information disclosure statement (IDS) filed during the period set forth in 37 CFR 1.97 (a)..."

In the previous Office Action dated September 12, 2007, the Examiner did not address claim 27. Consequently, in the January 14, 2008 response, the Applicants submitted that claim 27 was allowable over the prior art of record. Moreover, the Applicants did not amend claim 27 in the January 14, 2008 response.

The Examiner rejected claim 27 under prior art in the present Office Action. Thus, by virtue of rejecting claim 27 under prior art in the present Office Action, the Examiner has introduced a new grounds of rejection that was neither necessitated by an amendment made by the Applicants, nor based on information submitted in an IDS. Consequently, the Applicants respectfully submit that the present Office Action has been improperly made FINAL, and respectfully request that the FINALITY of the present Office Action be withdrawn.

The claims have been rejected as indicated below.

Claims 1-3, 5, 22-27, 33, 38, 40, 45 and 47-52 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharma et al. (U.S. Patent No. 6,192,079) (hereinafter referred to as “Sharma”) in view of Demos (U.S. Patent Application Publication No. 2004/0005004) (hereinafter referred to as “Demos”).

Claims 13-17, 36 and 43 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishii (U.S. Patent No. 5,204,740) (hereinafter referred to as “Ishii”) in view of Demos.

Independent claims 1-3, 13, 22, 33, 36, 38, 40, 43 and 45 have been amended to distinguish over the references cited by the Examiner. The above rejections are submitted to be inapplicable to the amended claims for the following reasons.

Claim 1 recites an interpolation frame generation device including, in part, an interpolation frame generation unit operable to generate an interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame, wherein the image frame located temporally further from the interpolation frame includes the image block that is not included in one image frame. Moreover, the interpolation frame generation unit is operable to generate an interpolation frame for an image block that is included in at least one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally closest to the interpolation frame among at least one image frame including the image block.

As admitted by the Examiner in the Office Action, Sharma and Ishii do not disclose “that is not included in one image frame located sequentially after the interpolation frame in a display order, image frame that is located temporally further from the interpolation frame than the one image frame.” The Examiner cited Demos as teaching this feature, and specifically asserted that Demos teaches “interpolation frame for an image block using image frame that is located further away from the interpolation frame than the one image frame.”

In contrast to the present invention, Demos does not disclose an interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame, wherein the image frame located temporally further from the interpolation frame includes the image block that is not included in one image frame. Moreover, Demos does not disclose generating an interpolation frame for an image block that is included in at least one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally closest to the interpolation frame among at least one image frame including the image block.

Instead, Demos discloses an interpolation technique that allows any macroblock in a P frame to reference more than one previous P frame or I frame (see paragraphs [0121] and 0130)), or a previous P frame that is not the nearest in display order. Moreover, there is no suggestion or disclosure to modify Demos to generate an interpolation frame (i.e., a B frame) for an image block that is not included in a P or I frame that is located sequentially after the interpolation frame.

In other words, Demos does not disclose *an interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame, wherein the image frame located temporally further from the interpolation frame includes the image block that is not included in one image frame.* Moreover, Demos does not disclose *generating an interpolation frame for an image block that is included in at least one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally closest to the interpolation frame among at least one image frame including the image block.*

For at least the reasons discussed above, it is believed clear that the combination of Sharma and Demos fails to disclose or suggest the present invention as recited in claim 1.

Regarding claims 2, 3, 13, 22, 33, 36, 38, 40, 43 and 45, they are patentable over the references relied upon in the rejections for reasons similar to those set forth above in support of claim 1. That is, each of claims 2, 3, 13, 22, 33, 36, 38, 40, 43 and 45 similarly include generating an interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame, wherein the image frame located temporally further from the interpolation frame includes the image block that is not included in one image frame. Moreover, each of claims 2, 3, 13, 22, 33, 36, 38, 40, 43 and 45 similarly include generating an interpolation frame for an image block that is included in at least one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally closest to the interpolation frame among at least one image frame including the image block.

Moreover, claim 27 is allowable on its own merits. Specifically, claim 27 recites that the interpolation frame generation unit is operable to generate the interpolation frame by filling with the reference pixel area based on the motion vector, and for a pixel area that cannot be filled with the reference pixel area, the interpolation frame generation unit is operable to generate the interpolation frame by filling with a pixel area of the base frame or the reference frame.

For at least the reasons set forth above, it is respectfully submitted that the above-discussed features as recited in claims 1-3, 13, 22, 33, 36, 38, 40, 43 and 45 are not disclosed in the references applied by the Examiner. Furthermore, it is respectfully submitted that one of ordinary skill in the art at the time the invention was made would not have modified Sharma or Iishi in such a manner as to result in, or otherwise render obvious, the invention of claims 1-3, 13, 22, 33, 36, 38, 40, 43 and 45. Therefore, it is respectfully submitted that claim 1 and claims 47 and 48 depending therefrom, claim 2 and claims 49 and 50 depending therefrom, claim 3 and claim 5 depending therefrom, claim 13 and claims 14 -17 depending therefrom, claim 22 and claims 23-27, 52 and 53 depending therefrom, and claims 33, 36, 38, 40, 43 and 45 are clearly allowable.

In view of the foregoing amendments and remarks, all of the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action are respectfully solicited.

Should the Examiner believe there are any remaining issues that must be resolved before this application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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